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VII.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD
UNIVERSITY, NEW SERIES.

III.* — ADDITIONS TO THE PHÆNOGAMIC FLORA OF
MEXICO, DISCOVERED BY C. G. PRINGLE
IN 1891-92.

BY B. L. ROBINSON AND H. E. SEATON.

Presented January 11, 1893.

THALICTRUM TOMENTELLUM. Polygamo-diœcious: stem striate, fistulous, finely and densely pubescent: leaves tripinnate: petioles 1-2 inches long, tomentulose as well as the rachis and petiolules: leaflets suborbicular, subcordate, finely pubescent above, paler and tomentulose below, shallowly 3-lobed; lobes rounded, entire or with 2-3 rounded teeth: inflorescence pyramidal, subnaked: sepals 4-5, ovate-elliptical, 2 lines long: stamens spreading; anthers with rather long setiform tips: fruiting heads nodding on the pedicels; carpels about 10, scarcely stipitate, lanate, rugose-reticulate, hispidulous, very acuminate, and tipped with a very long filiform finally deciduous style. — Low lands about Lake Patzcuaro, Michoacan, July, 1892 (n. 4143). Differing markedly in its fine soft pubescence from various allied species.

POLYGALA MICHOCANA. Perennial, glabrous: stems several, slender, erect, approximate, angulate, simple, or with a few long slender erect branches: leaves small, lance-linear, scarcely spreading, sessile, very sharply acuminate, 2-4 lines in length, not exceeding $\frac{1}{2}$ line in breadth: spikes terminal, 1-2 inches long: bracts caducous, awl-shaped, very acute, purple, $\frac{3}{4}$ line long: flowers small, short-pedicelled, nodding, deflexed in fruit: sepals narrow, appearing very acuminate through the infolding of the margins, greenish white with purple midribs, the three smaller acute, the alæ pointed but obtuse,

* The two papers published by B. L. Robinson in these Proceedings, Vol. XXVI. pp. 164-176, and Vol. XXVII. pp. 165-185, are regarded as Nos. I. and II. of this series.

1½ lines long, but ½ line broad: petals white, not equalling the alæ: capsule orbicular, retuse, slightly margined. — Amongst pines, hills of Patzcuaro, Michoacan, August, 1892 (n. 4151). A species much resembling *P. scoparia*, HBK., but differing in its narrower and more pointed sepals, and in its orbicular not at all oblong fruit.

ABUTILON ATTENUATUM. Branches slender, terete, woody, stellate-pubescent: leaves lanceolate, attenuate, serrate, shallowly cordate, 2–2½ inches long, 10–12 lines broad, 3-nerved from the base, green and finely pubescent with simple hairs above, somewhat paler and soft pubescent with stellate hairs beneath: petioles 2–4 lines long: flowers in open terminal subsimple racemes: pedicels spreading, 7–9 lines in length: calyx lobes pubescent, ovate, acuminate, 3 lines long: corolla orange-yellow, once and a half as long as the calyx: capsule hirsute with spreading setaceous tips. — Slopes of mountains near Lake Chapala, Jalisco, November, 1892 (n. 4354).

PAVONIA MELANOMMATA. Two feet or more in height, finely glandular-pubescent: leaves ovate, acuminate, attenuate, crenate, soft pubescent above, velvety and cinereous beneath, 3–4 inches long, half as broad, the radical considerably smaller; petioles an inch long: pedicels ¾–1½ inches long: involucre of 5 linear bracts distinctly exceeding the calyx; the latter stellate-pubescent throughout: corolla externally pubescent, 1¼ inches in diameter, 3–4 times as long as the calyx, purplish white with an almost black glabrous centre; staminal column bearing near the base a number of short dark spatulate appendages (rudimentary stamens?): carpels glabrous, at maturity with sharp lateral angles, slightly keeled dorsally. — Volcanic hills, Monte Leon, Michoacan, November, 1892 (n. 4343). Possessing much the habit of *P. hirtiflora*, Benth., but having ovate crenate leaves, corolla smooth at the base within, and staminal appendages.

ASTRAGALUS TOLUCANUS. Root stout: stems several, slender, ascending, knotted below, minutely appressed-pubescent: stipules lanceolate, ciliate, acute, 2½–4 lines long: leaves 1½–2 inches long; leaflets 9–12 pairs, petiolulate, oblong, truncate or retuse, 2½–3½ lines long, glabrous above, appressed-pubescent below especially upon the midrib and near the margin: peduncles not exceeding the leaves: racemes dense, 1–2 or more inches in length: bracts oblanceolate to obovate, acute, pubescent, 2–3 lines long, persistent: pedicels a line in length: calyx light colored but covered with short black hairs; the teeth narrowly lanceolate, attenuate, 1¾ lines long, equalling the tube, densely black hairy: standard obovate, retuse, 5–6 lines long, it and alæ blue (in a dried state) and conspicuously striate with white: keel much

shorter and with a violet tip : pod oblong, smooth, 4 lines in length. — On drier ridges under pines, Nevado de Toluca, 12,000 ft., September, 1892 (n. 4238). Near *A. Mandoni*, Rusby ined., of Bolivia, represented by Bang's no. 1022, but differing in its more slender stems, smaller leaflets, and broader bracts.

STYLOSANTHES DISSITIFLORA. Much branched from near the base, 8–10 inches high, copiously beset with soft brownish setose hairs : sheath of the stipules $1\frac{1}{2}$ lines long, equalling the subulate setiform appendages : free portion of the petiole $1-1\frac{1}{2}$ lines long : leaflets linear lanceolate, sharply acuminate, somewhat narrowed but obtusish at the base, glabrous on both surfaces, strongly ciliate, 4–6 lines long, $\frac{3}{4}-1\frac{1}{4}$ lines broad, veins prominent beneath : flowers scattered, pinkish : stipe of the calyx $1\frac{3}{8}$ lines long, divisions of the limb obtuse, ciliate : standard obovate-orbicular, retuse, 3 lines in length : alæ obovate with very slender auricles : fruit not seen. — Dry rocky soil, Rio Blanco near Guadalajara, September, 1891 (n. 5172).

COTYLEDON SUBRIGIDA. Glabrous, $1\frac{1}{2}-2$ feet in height : leaves radical, sessile, ovate, acute, 3–4 inches long, two thirds as broad : stem and branches covered with a light bluish bloom : bracts of the stem 5–10 lines long, of the branches minute : inflorescence about a foot long, with about 8 spreading somewhat rigid racemosely 5–7-flowered branches : flowers large ($\frac{3}{8}$ inch), approximate, borne on the upper side of the branches : pedicels a line or two in length : sepals lanceolate-acuminate, half the length of the petals ; the latter lanceolate-acuminate, acutely keeled, somewhat gibbous at the base, red, internally tinged with yellow : stamens nearly equalling the corolla. — Ledges and cliffs, Tultenango Cañon, State of Mexico, October, 1892 (n. 4326). Near *C. gibbiflora*, Moç. & Sess., but with the branches of the inflorescence shorter and more rigid, leaves shorter, etc.

SEDUM PRINGLEI, Wats. var. ? **MINUS.** An inch or less in height : inflorescence more dense : antheriferous stamens only 5. — Bare earth, summit of the Nevado de Toluca, September, 1892 (n. 4240). Perhaps distinct : also near Peyritsch's *S. napiferum*, but differing in stamens, etc.

CUPHEA (DIPLOPTYCHIA) AVIGERA. A slender annual a foot and a half high : stem slightly scabrous, the middle of each internode glutinous : leaves opposite, membranaceous, nearly sessile, narrowly lanceolate, $1\frac{1}{2}-2\frac{1}{2}$ inches long, tapering almost from the subcordate base to the acuminate tip, roughened by minute hairs and somewhat adhesive : racemes axillary, alternate, loosely 3–5-flowered : bracts linear, much longer than the pedicels : bractlets none : calyx glandular-

hirsute, 4–5 lines in length, appearing horizontal, the ascending acutish spur being more than half as long as the proper tube, the latter narrowed upwards: the petals lilac, elliptical, subequal: the dorsal 2 lines, the four ventral $1\frac{1}{2}$ lines long: stamens 11, included: ovules 6. — Moist banks, mountains near Lake Chapala, Jalisco, November, 1892 (n. 4349). A species well marked by the almost horizontal calyx, which in shape resembles the body of a bird.

CUPHEA (LEPTOCALYX) REIPUBLICÆ. Slender, decumbent, about 3 feet high, somewhat branched: stem slightly scabrous with minute transverse hairs attached in the middle and with a line of much longer hairs: leaves ovate, acuminate, hispid on both surfaces, paler beneath, $1-1\frac{1}{2}$ inches long, two thirds as broad, abruptly narrowed at the base into a petiole 3–5 lines in length: pedicels interpetiolar, 3 lines long: calyx slender, nearly straight, almost an inch in length: the tube red with a white spot on the ventral surface at the summit, hispidulous, shortly and obtusely spurred: appendages linear oblong, setulose, green, considerably exceeding the lobes: petals deciduous, bright yellow, all small, the 2 dorsal $1\frac{3}{4}$ lines long, the 4 ventral about a line in length: stamens 9, unequally exserted: ovules about 12. — Rocky hills near Patzcuaro, Michoacan, October, 1892 (n. 4112). An attractive species, somewhat resembling the commonly cultivated *C. platycentra*, the calyx bearing the colors, red, white, and green, of the Mexican flag.

FUCHSIA PRINGLEI. Shrub, 2 feet high, with a brown shreddy bark: branches purple, pulverulent: leaves small, ovate-elliptic or lance-elliptic, obtuse, narrowed to a short petiole, somewhat undulate and revolute on the margins, very minutely pubescent above, considerably paler and nearly smooth beneath, about 4 lines long, half as broad: flowers 3 lines long, short peduncled, axillary, solitary: peduncles slender, 2 lines in length: calyx segments dark purple, oblong, apiculate, reflexed, two thirds as long as the free part of the tube: petals obovate, spreading, undulate, about equalling the segments of the calyx: stamens slightly exserted; style considerably so: fruit globose, 3–4 lines in diameter, black. — Mountains near Patzcuaro, Michoacan, November, 1891, in fruit (n. 5063); barranca near Guadalajara, Jalisco, September, 1891, also in fruit (n. 5002); and under pines, mountains near Patzcuaro, Michoacan, July, 1892 (n. 4140). This species differs from *F. minutiflora* and *F. mixta*, Hemsl., in its reflexed calyx segments, its undulate not serrulate leaves, and its relatively longer petals.

CYCLANTHERA PRINGLEI. Stem slender, nearly smooth, 5-ribbed:

leaves thin, ovate, undivided or more or less hastately 3-lobed, callous-denticulate, punctate on both surfaces, glabrous below, minutely pubescent on the nerves and somewhat scabrous above, 1-2 inches in length, acuminate and mucronate at the apex, deeply cordate at the base with a rounded open biglandular sinus: glands stipitate, minute, $\frac{1}{4}$ - $\frac{1}{3}$ line in diameter, on pedicels of equal length: tendrils slender, simple: racemes 4-5 lines long: staminate flowers yellow, $\frac{2}{3}$ line broad: rather single, annular, horizontal: fruit $\frac{1}{2}$ inch long, 4 lines broad, very oblique and strongly curved, laterally compressed, acutely beaked, armed with a few short weak spines; the convex suture spirally revolute in dehiscence. — Rocky hills near Patzcuaro, Michoacan, October, 1892 (n. 4317). Near *C. biglandulifera*, Cogn. (ex char.), but with more simple tendrils and very much smaller glands.

PIQUERIA LAXIFLORA. A sparingly pubescent annual, $1\frac{1}{2}$ feet high: stem weak, furrowed, branching: leaves thin, lanceolate, narrowed to an obtuse point, serrate, 3-nerved, $1\frac{1}{2}$ -2 inches long: petioles 3 lines in length: branches slender, terminating in loose panicles with flexuous filiform divisions: bracts minute, linear, 1- $1\frac{1}{2}$ lines long: pedicels filiform, spreading, 3-6 lines in length: heads 4-flowered: scales of the involucre 4 (2 narrower), thin, green, slightly fringed above and mucronate: achenes black, 5-angled, 1 line long, narrowed downward. — Cool slopes and ledges, Cañons of mountains near Lake Chapala, Jalisco, November, 1892 (n. 4333). Well characterized by its very diffuse inflorescence, which suggests *Valeriana sorbifolia* and allies.

PIQUERIA PRINGLEI. Rhizome horizontal, branching, several inches in length: stems subsimple, slender, erect, purplish, 1- $1\frac{1}{2}$ feet high, with a fine grayish pubescence: leaves broadly ovate, an inch in length, serrate, rather abrupt at the base, pubescent: petioles 3-4 lines long: inflorescence a rather dense irregular corymb: heads 2 lines long, 4-flowered: scales of the involucre 4, obovate, lacerate above and mucronate at the apex: corolla $1\frac{1}{2}$ lines long: filaments pubescent: achenes glabrous, black, a line in length. — In pine woods, Nevado de Toluca, September, 1892 (n. 4285). Habit of *P. pilosa*, HBK., but differing in its well developed rhizome, in its leaves more abrupt at the base, and its pubescent filaments.

STEVIA LAXA. — Root of numerous strong fibres: stem erect from a slightly decumbent base, about 2 feet high, purplish, terete, puberulent, substrate, simple up to the lax finely glandular inflorescence: leaves rather numerous below, opposite, ovate, acutish, crenate-serrate, 1- $1\frac{1}{2}$ inches long, nearly smooth, paler beneath, contracted below into

petioles of almost equal length: heads rather few, very loosely disposed upon slender subdichotomous branches: scales of the involucre lance-linear, acuminate, a little over 2 lines in length, covered with fine dark glandular pubescence: corollas white, externally roughened and with a pubescent limb; tube exserted: achenes slightly roughened, $1\frac{1}{4}$ lines long; pappus lacerate coroniform; aristæ none. — Dry hills near Patzcuaro, Michoacan, November, 1891 (n. 5051). The same as Bourgeau's no. 3331, from Escamella, near Orizaba, October, 1865.

EUPATORIUM SALTIVARI, Schultz Bipontinus. Rootstock horizontal, branching: stems several, erect, purple, pubescent, glandular above, 1–2 feet high, throwing out several small weak branches near the base: leaves ovate, acute, coarsely serrate, abrupt at the base, pubescent on both surfaces, $1-1\frac{1}{2}$ inches long, more than half as broad: petioles 3–4 lines in length: heads rather few, aggregated in small terminal corymbs, 4 lines high, about 50-flowered: involucre scales subequal in about two series, lanceolate, acute, ciliate, striate, the outer glandular: corolla tubes slender, as long as the ample throat: achenes slender, slightly curved, $1\frac{1}{3}$ lines in length, hispidulous, callous-tipped at the base. This apparently good species of Schultz Bipontinus, founded upon Schaffner's no. 298 from the Val de Mexico, October, 1855, seems never to have been described. It has since been collected by Bourgeau in the same place (n. 818), and by Mr. Pringle in pine woods, Nevado de Toluca, State of Mexico, September, 1892 (n. 4286).

BRICKELLIA SQUARROSA. Stems subsimple, 2 feet or more in height, terete, covered with short dense pubescence, somewhat glandular roughened above. leaves opposite, oblong-lanceolate, obtusish, more or less acute at the base, crenate, $1\frac{1}{4}$ –2 inches in length, very rough and somewhat rugose above, prominently reticulated, hispid on the veins and black punctate on the surface below: petioles 4 lines long: heads 7 lines long, about 12-flowered, in a subsimple raceme: pedicels an inch long: the outer scales of the involucre shorter, herbaceous, squarrose, glandular; the inner thin, purplish-striate, acute: corolla lobes minutely callous-tipped: achenes pubescent: pappus appressed-barbellate. — Mountains near Patzcuaro, Michoacan, December, 1891 (n. 5054).

SABAZIA SUBNUDA. Root of many fibres from a short rootstock: stems slender, erect, pubescent, almost naked, bearing one to three large long-peduncled heads: radical leaves ovate-elliptical, obtuse, entire, triply nerved, narrowed to a short broad petiole, ciliate, glabrous

above, paler and subglabrous below, $1\frac{1}{4}$ –2 inches long; the cauline usually a single pair, reduced to short linear bracts: heads including rays $1\frac{1}{4}$ inches broad: outer bracts of the involucre ovate, commonly purplish, obtusish, 4 lines in length, the inner somewhat longer, narrower and ciliolate: rays purplish white, oblong, conspicuously 3-toothed, exceeding half an inch in length, abruptly contracted below into a very slender tube: receptacle elongated: chaff filiform: achenes black, glabrous. — In pine forests, Nevado de Toluca, 12,000 ft., September, 1892 (n. 4226).

VERBESINA ONCOPHORA. Shrub: younger parts gray-tomentulose: leaves lance-elliptic, acuminate in each direction, thickish, 3–7 inches long, finely and rather regularly serrate, scabrous above, tomentose and pulverulent beneath with yellowish white hairs; petioles $\frac{1}{3}$ – $\frac{1}{2}$ inch long; a small fleshy folded finally deciduous appendage occurring on each side of the base: corymbs compound, many headed: heads 4 lines in diameter: scales of the involucre acute, not at all foliaceous: rays yellow, about 8, exserted 2–3 lines: disk flowers pubescent: achenes rather narrowly winged, $1\frac{1}{3}$ lines long, hispidulous upon the faces. — Sierra de las Cruces, State of Mexico, October, 1892 (n. 4310); Bourgeau's 967, Forest of San Nicolas, near Mexico, 1865–66. Near *V. persicifolia*, DC., but differing in the greater pubescence and finer serration of the leaves, the presence of the peculiar excrescences on the stem at the base of the petioles, and in the pubescent corollas.

TRIDAX PALMERI, Gray, var. **INDIVISA**. Rough pubescent, almost hirsute: leaves ovate, rather irregularly dentate, scabrous, undivided. — Cañon ledges, mountains near Lake Chapala, Jalisco, November, 1892 (n. 4332). This plant corresponds except in its pubescence to Parry & Palmer's 489. But both of these specimens differ so conspicuously from the form of the species with divided leaves, represented by Parry & Palmer's 482 $\frac{1}{2}$ and 490, and Schaffner's 236, that it seems best to characterize them as a variety. Parry & Palmer's 489 corresponds rather closely with this variety in its foliage, but is much less pubescent, and in this regard furnishes a transition to the smoother forms with undivided leaves, represented by the other type specimens (Parry & Palmer's 482 $\frac{1}{2}$ and 496) and by Schaffner's 236.

SCHKUHRIA GLOMERATA. Roots fibrous: stem simple, erect, striate, glandular-hirsute, $1\frac{1}{2}$ feet high: the lower leaves opposite, petiolate, minutely resinous-dotted, palmately 3-parted to the base; segments linear or linear-oblong, the middle one sometimes toothed, the lateral ones very deeply bifid: the upper leaves alternate, sessile, simplified: heads aggregated at the ends of the branches: pedicels

short: involucre commonly campanulate rather than turbinate, 2 lines long; bracts about 8, oblanceolate, pubescent, purplish, scarious-margined: rays none: disk flowers white, 10–12: achenes sharply 4-angled, very pubescent: pappus scales 8, suborbicular, narrowed and thickened toward the base.—Rio Hondo, State of Mexico, September, 1891 (n. 5006), and from the same locality, September, 1892 (n. 4289). Well characterized by its short-pedicelled, somewhat aggregated heads, and subcampanulate involucre.

SENECIO ALIENUS. Nearly smooth below, minutely glandular above: stem herbaceous, purplish, somewhat striate, with flexuous character suggestive of a climbing habit: leaves long-petioled, shallowly 3-lobed, broadly triangular in outline, or by the development of two obtuse angles near the base irregularly pentagonal, finely cuspidate-dentate, nearly smooth, light colored sometimes purplish beneath, $2\frac{1}{2}$ –4 inches in diameter, peltately attached near the subcordate base; lobes acute: inflorescence lax, irregularly racemose-paniculate: bracts filiform: the heads developing successively the highest first, 12–15-flowered: buds ovate: involucre bracts purplish, hispidulous and glandular, about 8 in number, linear lanceolate with incurved acute tips: corolla of *Eusenecio*: anthers sagittate: achenes glabrous, 10-ribbed.—Mountains near Patzcuaro, Michoacan, December, 1891 (n. 5056). In its peculiar inflorescence and successive development of the heads, as well as in its sagittate anthers, this species approaches the East Indian section *Synotis*.

SENECIO JALISCANA, Wats. (Proc. Am. Acad., XXVI. 143). Mr. Pringle's later specimens of this species add the following characters. Height 8–10 feet: lower leaves rather deeply cordate, shallowly lobed, 8 inches long, nearly as broad.—Cool wooded cañons, mountains near Lake Chapala, State of Mexico, November, 1892 (n. 4329).

CACALIA PLATYLEPIS. Root a cluster of strong fibres: stem herbaceous, woolly at the base, otherwise smooth, sulcate-striate: radical leaves long-petioled, ovate, cordate; limb coriaceous, smooth, strongly reticulated, pinnately divided, 10–12 inches long, two thirds as broad; segments irregularly 2–3-parted, the margins callous-denticulate: the cauline leaves much reduced, the upper consisting almost entirely of broad ovate sheathing petioles, toothed near the apex: heads corymbose, very large, 40–50-flowered, subtended by several laciniately toothed bracts: involucre broadly campanulate; the scales strongly imbricated in two series, ovate, thickened in the middle, acutish, the margins ciliate, the tip bearing a tuft of hairs: corolla very slender, 6–7 lines long, the tube somewhat exceeding the limb: achenes

(immature) $1\frac{1}{2}$ –2 lines long, pubescent. — Collected by Dr. Edward Palmer on the Rio Blanco, Jalisco, October, 1886 (n. 689), and by Mr. Pringle on the plains of Guadalajara, November, 1888 (n. 1816). Both of these plants have been referred through some oversight to *C. raduliaefolia*, HBK., by Drs. Gray and Watson (Proc. Am. Acad., XXII. 433), and distributed under this name. They must, however, be very distinct from that species, which has, according to the description, numerous small 5-flowered heads. *C. platylepis* evidently stands close to *C. cervariaefolius*, DC., but is amply distinct in foliage and size of the heads.

CACALIA PELTIGERA. Roots several, short, thick and tuberous: stem herbaceous, about 3 feet high, terete, purple, nearly smooth: leaves mostly radical, long-petioled, centrally peltate, orbicular in outline, 8–12 inches in diameter, pubescent on both surfaces, especially upon the veins, deeply 9–11-parted with rounded sinuses; the lobes narrow, 2–3-parted; the divisions attenuate, sharply and irregularly toothed; the cauline leaves similar but smaller: heads small, 5–7-flowered, in a naked much branched corymb: bracts of the involucre about 5, oblong or oblanceolate, obtusish, 3 lines in length, with narrow scarious margins, and usually bearing at the tip a tuft of very short hairs: corolla 5 lines in length; the lobes exceeding the tube: achenes conspicuously striate-sulcate, nearly smooth, $2\frac{1}{2}$ lines long. — First collected by Dr. Edward Palmer on the Rio Blanco, Jalisco, in 1886 (n. 171); then by Mr. Pringle on bluffs of a barranca near Guadalajara, September, 1891 (n. 5154). The former specimen was referred by Dr. Watson (Proc. Am. Acad., XXII. 432) to *C. Schaffneri*, Gray, from which, however, it differs essentially in its short thick roots, centrally peltate leaves with much more attenuate segments, and in its nearly smooth achenes.

CNICUS TOLUCANUS. Radical leaves lance-oblong, acute, about 25-lobed, green and strigose-pubescent above, much paler and somewhat arachnoid beneath, 7–10 inches long, $1\frac{1}{2}$ –2 inches broad; lobes ovate-oblong, acute, spinulose-dentate, gradually diminished downward: the cauline leaves much reduced, not decurrent: heads nodding, usually solitary at the ends of long slender nearly naked branches, $1\frac{1}{2}$ –2 inches in diameter: outer bracts of the involucre short, narrowly lanceolate, spinulose-dentate, with slender reflexed tips; the inner much longer, with dilated purple fimbriate unarmed tips: corollas purplish, 8 lines in length, glabrous: filaments puberulent; tails of the anthers lacerate-toothed: achenes compressed, black, smooth and shining, 2 lines in length. — Wooded cañons, Sierra de las Cruces, State of Mexico August, 1892 (n. 4308).

PEREZIA HEBECLADA, Gray (Pl. Wright. I. 127). This rare species has been rediscovered by Mr. Pringle, and his excellent specimens show the following additional characters. Leaves coriaceous, crowded, strongly reticulate, oblong, sagittate-cordate, abruptly pointed, 4 inches or more in length, nearly half as wide; the upper gradually diminishing in size, acuminate. — Pedregal, Valley of Mexico, Federal District, December, 1892 (n. 4360).

PEREZIA VERNONIOIDES, Gray (Proc. Am. Acad., XXII. 433), founded upon Palmer's no. 745 from Jalisco, proves to be a form of *Vernonia serratuloides*, HBK.

LOBELIA PICTA. Glabrous, 6–8 inches in height: stems slender, decumbent, rooting from the lower joints, simple or with one or two branches from near the base, leafy, minutely angulate through the decurrent margins of the leaves: leaves linear, sessile, narrowed to an obtusish point, inconspicuously appressed-serrulate, 1-veined, thickish, 1 inch in length, $\frac{1}{2}$ line in width; a few of the lowest leaves of a very different form, broadly spatulate, obtuse, 3–4 lines long, narrowed to a very slender petiole 6–8 lines in length: inflorescence spicate-racemose, raised on a naked peduncle an inch or more in length: bracts linear, 1–2 lines long, the lower equalling, the upper exceeding the pedicels: flowers nodding, $\frac{1}{2}$ inch in length: calyx tube symmetrical, becoming in fruit almost hemispherical, exceeded by the linear acute serrulate teeth: corolla tube not equalling the calyx teeth, lobes lanceolate or ovate-lanceolate, acute, 3 lines in length, light blue or white, conspicuously pencilled with dark blue: filaments short, pubescent: anthers hispidulous, the two lower slightly smaller, tufted at the apex, the other three with minute setæ. — Cold springy meadows, Sierra de las Cruces, October, 1892 (n. 4305). A very attractive species with small but beautifully variegated flowers; to be distinguished from *L. Orizabæ*, Mart. & Gal., and *L. pauciflora*, HBK., by its very short corolla tube, by the hispidulous anthers, etc.; from *L. Irasuensis*, Plan. & Oerst., by the symmetrical calyx not acute at the base.

ARCTOSTAPHYLOS RUPESTRIS. A shrub 4–10 feet high with brown shreddy bark: leaves 4–5 inches long, coriaceous, oblong-elliptic, acute at both ends, finely serrate with cartilaginous teeth, when young erect, pubescent above, densely ferruginous-tomentose on the under surface, with age reflexed, glabrate above, and becoming less tomentose and tawny beneath, not however glabrate: racemes of the panicle rather loosely flowered, scarcely at all secund, covered with a fine grayish pubescence; bracts crimson, lanceolate, 3 lines long,

slightly surpassed by the straight spreading pedicels: corolla white, globose; filaments hairy at the base: fruit not seen. — Dry rocky hills near Patzcuaro, Michoacan, October, 1892 (n. 4318). Resembling *A. arguta*, Zucc., in the form and indentation of the leaves, but differing in their pubescence and in the inflorescence. Also near *A. attenuata*, Hemsl. (ex char.), but not glandular, and with acute by no means rounded leaves.

GENTIANA WRIGHTII, Gray. Mr. Pringle's no. 4237, from moist meadows, Nevado de Toluca, 11,000 ft., State of Mexico, September, 1892, is apparently a low and considerably branched form of this species, 4–6 inches in height; while no. 4196, from wet meadows, valley of Toluca, is another form nearer the type.

HALENIA CRASSIUSCULA. Biennial, glabrous, slightly fleshy, 2–4 inches in height: stem erect, very narrowly 4-winged, much branched: radical leaves oblanceolate, 3-nerved, petiolate, obtuse, including petioles an inch in length: cauline leaves 1–3 pairs, narrowly oblanceolate or oblong, obtuse, narrowed at the base: flowers including spur 6 lines long, densely aggregated at the ends of the stems and branches: calyx segments linear-oblong, obtuse, about half the length of the white corolla; spurs slender, spreading, and curved upwards; flowers after anthesis slightly nodding, not at all resupinate: capsules exserted, acute, 4 lines in length. — Bare alpine summits, Nevado de Toluca, 14,000 ft., September, 1892 (n. 4229).

HALENIA PRINGLEI. Glabrous: root biennial: stem single, simple or nearly so, slender, erect, a span high: radical leaves narrowly oblanceolate, 1-nerved, attenuate below to a slender petiole; the cauline 1–2 pairs, short, lance-linear: umbellate cymes usually 3; the lateral from near the middle of the stem, about 3-flowered, the terminal about 5-flowered: pedicels 3 lines in length: sepals oblong, acute, half the length of the corolla: corolla white, 4 lines long; spur slender, deflexed spreading and curved ascending, about equalling the corolla: capsule exserted, acutish. — Springy meadows, Sierra de las Cruces, State of Mexico, August, 1892 (n. 4209).

KRYNITZKIA LINIFOLIA, Gray. Mr. Pringle's no. 4241, from muddy hollows of prairies, Flor de Maria, September, 1892, closely approaches this species, and has been provisionally referred to it. It belongs to the imperfectly known group of South American Krynitzkias with procumbent subfleshy stems and linear opposite somewhat connate leaves.

RUSSELIA SUBCORIACEA. Glabrous: stems somewhat ligneous, branched, 4-angled: leaves opposite, very short petioled, ovate, acu-

minate, $2\frac{1}{2}$ inches long, $1\frac{1}{2}$ – $1\frac{3}{4}$ inches broad, subcoriaceous, slightly glossy above, a little paler and with prominent veins beneath, the edges crisp: flowers on short opposite branches; pedicels about 3 lines long, calyx teeth acuminate; corolla $\frac{3}{4}$ inch long, three times the length of the calyx, bright red; tube cylindrical, densely yellow bearded in the throat; lobes, 4, the three ventral subequal, the dorsal broader emarginate; filaments bearded below; the rudiment one third to one half the length of the others: capsule ovate, 4 lines long, the acuminate valves at last bifid: seeds separated by hairs. — Tamasopo Cañon, San Luis Potosi, June, 1891 (n. 5086). This is an anomalous species, sharing almost equally the characters of *Pentstemon* and *Russelia*. However, its angled stem, short rudimentary stamen, cylindrical corolla tube, and the capillary structures between the seeds, show apparently a stronger affinity to the latter genus.

CASTILLEIA PALLIDA, Kunth. var. ? *ANGUSTATA*. A span high: leaves simple, linear: floral bracts lance-linear, acute: flowers pale yellow. — Grassy slopes near Patzcuaro, Michoacan, July, 1892 (n. 4117).

PEDICULARIS EBURNATA. Rhizome short, knotty: stem erect, hirsute-pubescent, terete, simple, 2–3 feet in height: leaves in outline lance-oblong, acuminate, 5–6 inches long; rachis pubescent; leaflets 16–22 pairs, ovate or lanceolate, acute, cleft into about 7 lobes, green and scarcely pubescent below; the segments margined with white ivory-like teeth; petioles of the radical leaves 2–3 inches long, pubescent; of the upper cauline leaves short or none: spike simple, more than a foot in length; bracts lance-linear, callous-denticulate with reflexed teeth, acuminate, the lowest surpassing and the others equalling the calyx: calyx 3–4 lines high, ovate, pubescent; teeth subequal, ciliate or slightly denticulate: galea narrow at the base, enlarged upwards, truncate at apex, considerably exceeding the lip, the latter 4 lines in length, with 3 orbicular crenate lobes; the middle one slightly smaller than the lateral: capsule smooth, ovate, 2-edged, shortly acuminate, 5 lines long. — Sierra Madre, 9,000 feet, Chihuahua, October, 1887 (n. 1556).

DICLIPTERA RESUPINATA, Juss. var. *ORBICULARIS*. Leaves large, ovate, $1\frac{1}{2}$ – $2\frac{1}{2}$ inches long: lateral pedicels very short: involucrel bracts larger, thinner, and more deeply cordate than in the typical form, distinctly orbicular, retuse. — Barranca near Guadalajara, October, 1891 (n. 5169).

SALVIA CLINPODIOIDES, HBK. Specimens corresponding accurately to Kunth's description and plate of this noteworthy species have

been found in sandy fields, hills of Patzcuaro, Michoacan, October, 1892 (n. 4258). They show that the plant is $1\frac{1}{2}$ feet or more in height, and that the roots bear fusiform tubers an inch or two in length.

SPIRANTHES AURANTIACA, Benth. & Hook. var. *ACUMINATA*. Bracts narrower, acuminate, somewhat exceeding the flowers, the edges involute. Collected by Dr. Palmer in Jalisco, 1886, no. 581, and by Mr. Pringle on foothills of the Sierra Madre, Chihuahua, 1887 (n. 1509), and again on swells of low meadows, Valley of Toluca, September, 1892 (n. 4280).

DIOSCOREA MINIMA. Glabrous (δ only seen): tuber globose, $\frac{1}{3}$ – $\frac{2}{3}$ inch in diameter: stem weak, flexuous, 1–3 inches high, about 2-leaved: leaves ovate, cordate, acuminate, about 9-nerved, 1 inch or less in length, on petioles 3–6 lines long: staminate spikes 2–4, slender, pedunculate or subsessile, less than an inch in length, rather densely flowered, not manifestly verticillate except below: bractlets linear, two thirds as long as the flowers: divisions of the perianth elliptical, obtuse, $1\frac{1}{4}$ lines in length, white with a green midvein; stamens 3, a third shorter than the perianth. — Lava beds near Patzcuaro, Michoacan, July, 1892 (n. 4157). This species is nearly related to *D. multinervis*, Benth., but differs in the form of the leaves and in the length and color as well as somewhat in the arrangement of the flowers.

In the labels of Mr. Pringle's distribution of 1893 the following corrections are to be noted: —

4119, *Piqueria Pringlei*, Rob. & Sea.

4133, drop mark of interrogation.

4229, read *crassiuscula*, not *crassicaula*.

4238, *Astragalus Tolucanus*, Rob. & Sea. n. sp.

4246, *Senecio procumbens*, HBK.

4296, add *ex char.*